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ABSTRACT

An electrically driven membrane process apparatus is provided comprising a first spacer having a perimeter having a surface with an inner peripheral edge defining an opening, and a recess formed on the inner peripheral edge, and an ion exchange membrane having an outer edge fitted within the recess. The spacer can further comprise a plurality of bosses and an ion exchange membrane having a corresponding plurality of apertures for receiving the bosses. The spacer can include a plastic mesh consisting essentially of polypropylene or polyethylene, and a perimeter surrounding the plastic mesh, the perimeter comprising material selected from the group consisting of thermoplastic vulcanizates and thermoplastic elastomeric olefins. The spacer can have an upstanding seal member depending therefrom, received by groove within a corresponding frame member. A second spacer is also provided having a continuous flange depending from its surface and surrounding a throughbore, for pinching a portion of the first spacer. A method of injection molding a thin plastic part comprising a perimeter having an inner peripheral edge and a mesh joined to the inner peripheral edge is also provided including the steps of (a) providing first and second mold halves, each of the mold halves having an interior surface and a continuous ridge depending therefrom; and (b) pinching opposite side of the mesh between the ridges to form a flow barrier.